NUMBER SEVEN NOTES FROM THE SHOP

Woodsmith™

SUPER STORAGE
FIVE PROJECTS
TO CONTROL THE
PAPER CRUNCH

PLUS: MITER AND SPLINE JOINERY
ROUTER TABLE TECHNIQUES

Woodsmith

Number Seven January, 1980

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Talking Shop

ABOUT THIS ISSUE

This issue deals with paper storage in one form or another. The project I like the most is the book rack on page 12. It's simple in design, easy to build, useful, and it works. (It's not hard to please me.)

The Tips & Techniques page (following) is one I hope will catch on. If you have any ideas for this page, please don't hesitate to send them in. All ideas are welcome (but not all will be published).

This page might also serve as a forum for those "How do you . . .?" or "Where can I find . . .?" types of questions. If you have some questions like that, send them in too, and we'll see what happens.

CHANGES, NOTES AND THOUGHTS

Starting with this issue there are some minor changes. Those of you who have been subscribing for a while know *Woodsmith* used to be sent in a 9 x 12 envelope. Gone are those days. To put it simply, it cost too much. And it bothered me to spend that amount of money on something that would just be tossed anyway.

The only purpose of the envelope was to keep *Woodsmith* from getting mangled in the mail. If that happens, and you'd like a replacement copy, just let me know and we'll send one out (this time in an envelope). Send us a note saying that your issue got mangled in the mail (be sure to mention which Issue Number it is) and we'll get a new one to you (no charge).

• It seems only fair that if we gave up one envelope we should include another. So, bound in the center of *Woodsmith* is a special envelope that you can use to order back issues, notify us of a change of address, renew your subscription, or send a gift subscription. (That should about cover everything.)

Also, feel free to use it to send in any comments or suggestions you have about *Woodsmith*. I do read every letter and note that comes in. Your comments really help and it's the only way I'll know what you want to see more of or less of.

• The Publisher's Statement below is required by the Post Office when you mail via second class postage. It will appear every year in the January issue, so you can keep track of our growth. However, it's already out of date. Now we stand at about 2,000 subscribers (all happy, I hope).

• A lot of new subscribers have asked for a list of contents for back issues. I've included this on the last page and it will be updated each issue.

We have a very simple policy here: If you're not satisfied with *Woodsmith*, just let us know and we'll refund your money for any unmailed issues. That same policy goes for back issues. If you order a back issue and you don't like it, you get your money back. (But I will have to ask that you return the issue.)

• In the last issue of *Woodsmith* I mentioned that I wanted to do a questionnaire. We got a start on that when we sent out renewal notices recently. Those are coming back now and I plan to tabulate them and let you know of the results.

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STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

(Required by 39 U.S.C. 3685)

1. Title of publication: Woodsmith. 1a. Publication Number: 465410. 2. Date of filing: October 1, 1979. 3. Frequency of issue: Bimonthly 3a. Number of issues published annually: 6. 3b. Annual subscription price: $10. 4. Location of known office of publication: 3112 38th Street, Polk County, Des Moines, Iowa 50310. 5. Location of the headquarters or general business offices of the publishers: 3112 38th Street, Polk County, Des Moines, Iowa 50310. 6. Names and complete addresses of publisher, editor, and managing editor: Publisher/Editor: Donald B. Peschke, 3112 38th Street, Des Moines, Iowa 50310. 7. Owner: Donald B. Peschke, 3112 38th Street, Des Moines, Iowa 50310. 8. Known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages or other securities: none. 9. Does not apply. 10. Extent and nature of circulation:

	Average no. copies each issue during preceding 12 months	Actual no. copies of single issue published nearest to filing date (September 1, 1979)
A. Total no. copies printed (net press run)	2050	2050
B. Paid circulation		
1. Sales through dealers and carriers, street vendors and counter sales	-0-	-0-
2. Mail subscriptions	533	669
C. Total paid circulation (Sum of 10B1 and 10B2)	533	669
D. Free distribution by mail, carrier or other means samples, complimentary, and other free copies	148	100
E. Total distribution (Sum of C and D)	681	769
F. Copies not distributed		
1. Office use, left over, unaccounted, spoiled after printing	1369	1281
2. Returns from news agents	-0-	-0-
G. Total (Sum of E, F1 and 2 - should equal net press press run shown in A)	2050	2050

11. I certify that the statements made by me above are correct and complete. (Signed) Donald B. Peschke, Publisher/Editor.

Tips & Techniques

BIG BUCKS?

This is a page I've wanted to get started for a long time. For me, one of the most fascinating things about woodworking is all of the little tips and techniques that are devised to solve one small problem.

I pulled together a few of these tips on this page. There's nothing earth-shattering, but they can be very helpful.

However, since I have my say on the rest of the pages of *Woodsmith*, I thought you might like to offer your ideas and special tips. So, this page is yours.

And, to make it worth your while, if you send in a tip, you'll receive a minimum of $5 (if the tip is published). Granted, that's not big bucks, but it might buy a small tool or some wood. For your bigger ideas (like jigs or special techniques) you'll get more money, say $10 or $20. (Now you're on the road to fame and fortune.)

Seriously, I want to keep this page fair and honest. I'll do my best to be fair in the amount of money given for any tip or technique you send in (if it's accepted for publiction). And it's up to you to keep it honest (don't copy an idea from another magazine or book).

If your idea involves a drawing or photo to explain it, do your best and we'll make a new drawing ifnecessary, or build the project or jig and photograph it for publication. However, any drawings or photos you send in can *not* be returned. So, make a copy, or send us the copy.

Now it's up to you.

GETTING AROUND

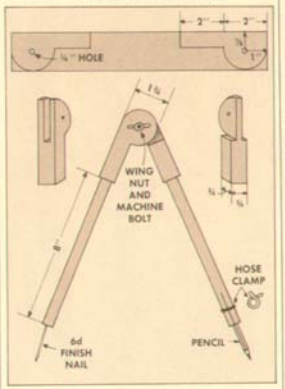
Drawing small circles is usually not a problem. I use a dime-store compass, or jar lids, or the bottom of cans, or nickels, dimes and quarters. But for large circles you're much more limited. Cake pans will work. Or, you can use a string with one end tied to a nail and the other end wrapped around the end of a pencil. This works, but not very well, since the string stretches and it's difficult to duplicate the exact same circle.

I decided to make a large compass for those times I need to get around in a big way.

The head sections at the top of the arms are cut as a P-shaped open mortise and tenon. To make the head sections, start with a stick of wood ¾" thick, 1¾" wide, and long enough to handle easily during cutting. (It must be at least 8" long, but it will be much easier to handle if it's about 12" long.)

Draw the "P" shape on both ends of the stick but don't cut it out yet. First drill a ½" hole in each "P" 1" down from the top and ¾" in from the *back* edge. Then cut an open motrise in one end of the stick ¼" wide and 2" deep. On the other end of the stick cut a tenon ¼" wide and 2" long.

Now cut out the "P" shape. The circular part of the "P" is 2" from the top to the beginning of the shank portion. The shank is ¾" square and 2" long.



Cut off each of the "P" sections and drill a ½" hole in the end of the shank for the arms. For the pivot arm, drill a 7/16" pilot hole in the end of a ½" dowel and tap in a 6d finish nail. (I drilled this hole at a slight angle so the nail would be closer to straight down when the arm was at an angle.) Grind the head of the nail to a sharp point.

On the pencil end, drill a ¼" hole about 1" deep. Then cut two kerfs down the dowel. The kerfs produce four "fingers" that tighten around the pencil. Use a spring-type hose clamp to hold the pencil in place or simply wrap a rubber band around the "fingers".

The length of the arms determines the diameter of the circle you can draw. With 8"-long arms you can draw a circle up to 30" in diameter. (And that's really getting around.)

A SLIPPERY ROUTER

In *Woodsmith* No. 6 I mentioned that I was having some trouble with bits slipping out of the collet of the router. Several readers have written in to say that they experience the same problem (on a variety of routers).

After fiddling around with the router and the collet for a while, I found a partial solution. It helps to clean the shank of the bit (and the collet) with steel wool before mounting it.

It seems when the router bit slips, small particles of metal are rubbed off. These particles act as small ball bearings and cause the bit to slip even more. Cleaning off these particles (which at first simply make the shank of the bit look dull, and later look like black dust) re-establishes the contact between the bit and collet.

A STICKY PROBLEM

Glue should be applied so a thin line of beads appears along the joint when clamped. If too much glue is applied, you'll have a sticky mess to clean up. If no glue oozes out of the joint, you risk a joint failure because of insufficient glue.

However, whether there's a perfect line of glue along the joint or if there's way too much, removing the excess is the next problem at hand. Most glue manufacturers recommend wiping up the excess glue with a damp cloth. But this procedure usually results in smearing the glue around, and sometimes diluting it to the point that it soaks into the wood.

I prefer to wait until the glue beads are almost dry (usually one or two hours, depending on the size of the beads). Then I remove them with a paint scraper. Just draw the scraper down the glue line and all those beads just pop right off.

JUST A LITTLE GLUE, PLEASE

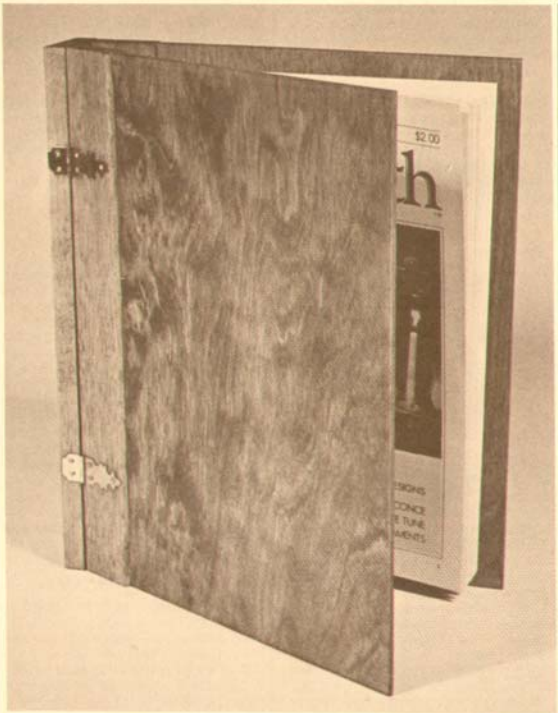
Sometimes I need to apply just a little bit of glue in a narrow dado or rabbet. To avoid getting glue slopped all over the place, I make a mini glue brush.

Take an inexpensive ½" paint brush and bend a small wad of bristles away from the others. Wrap some masking tape tightly around these bristles about 1" from the end. Cut off the bristles (just above the tape) and you have a glue brush that fits the job.

Since the bristles on paint brushes are too long to make a controlable glue brush, I cut off the remaining bristles at a slight angle. When the bristles are short like this, they're stiffer and easier to control.

Looseleaf Binder

AN UNOFFICIAL BINDER FOR STORING BACK ISSUES



Several people have asked: Why don't you sell a *Woodsmith* binder to store all of the back issues? At first I thought that would be a pretty good idea. Then I reconsidered. The whole point of *Woodsmith* is to show how to make things so you don't have to buy them.

I thought it would be much better to *make* a binder for back issues, especially if it were made of wood. So, here's the unofficial *Woodsmith* binder.

The three pieces (A, B and C) that make up the spine are ½" Birch. I ripped these pieces from a 5½"-wide piece.

Pieces (C) and (A) are joined with a spline set into blind grooves. Figure 3 shows the blind groove being cut in piece (A). When cutting piece (C) keep the fence in the same position and lower the edge onto the dado blade. Also, cut a ⅜"-deep groove on the front edge of pieces (B) and (C) for the plywood covers.

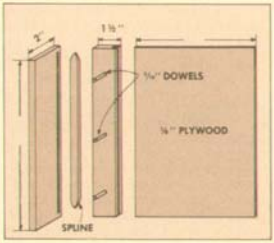
Finally, mark the position of the three holes for the dowels. (The easiest way is to use this issue of *Woodsmith*.) Use 3/16" dowels, just long enough so piece (B) rests on top of them.

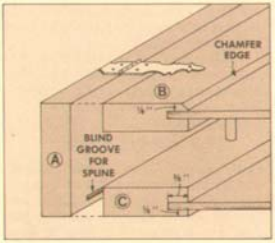
The covers are five-ply, 1/4" birch veneer plywood. I purchased this plywood at a hobby store that sells supplies for building model airplanes. It is excellent quality (should you use anything less for this project?) and is usually sold in 12" x 12" or 12" x 24" sheets.

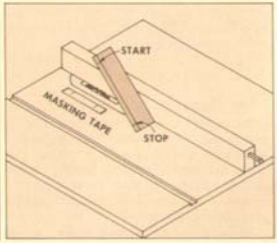
To join the front cover to the back of the spine (A), I used a set of *Stanley* ornamental hinges.

The entire binder received two coats of *Minwax* Early American stain and I finished it with *Hope's* Pure Tung Oil.

This binder should hold about three years' worth of *Woodsmiths*. So, all that's left to do is put in your back issues, and renew your subscription so you'll have enough issues to fill it. (Just kidding.)







Waste Basket

AN OCTAGONAL WASTE BASKET WITH A TOUCH OF CLASS

Just as I was finishing up on this waste basket, I leaned over to clean out some sawdust and to my surprise I heard a small voice. It said, "I am a classy waste basket, and I'll not tolerate the likes of coffee grounds or banana peels. Only stationary, preferably without staples." (Just thought I'd warn you.)

I wanted to build a nice, small waste basket. This one was cut out of one piece of ½" x 5½" x 72" maple. Cut each of the eight sides to length and width. Then rip the edges at 22½°. Leave the arbor set at 22½° and change to an ¼" dado blade to cut the grooves for the splines (Fig. 3). Finally, cut a groove along the bottom of each piece for the spline that joins the sides to the bottom.

When all of the sides are cut, rip ½"-wide splines to join them. Before cutting the bottom, dry-clamp all of the sides together with a band clamp. Place this assembly on the piece for the bottom and mark the inside perimeter. (It's also best at this point to mark the sides so you can reassemble them in the same order.)

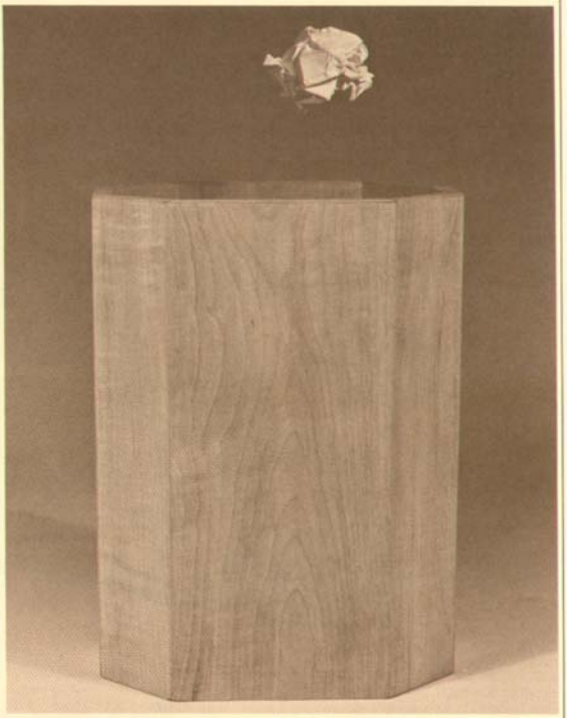
The bottom should require four 45° cuts, one at each corner. But follow the marked lines so it will fit snugly.

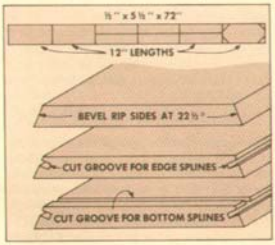
The splines at the bottom should be mitered so they don't interfere with the splines joining the sides.

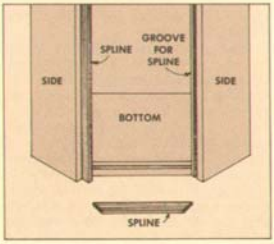
Glue all pieces together at once using band clamps. Then, since the splines show along the top of the waste basket, I applied plywood edging tape. Finally, I finished it with *Watco* Danish Oil.

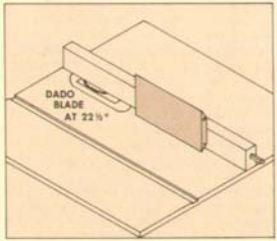
The finished version of this waste basket measures 12" high, 9" wide, and 6¼" deep. That means it's rather small. A larger version could easily be made by increasing the width of four of the sides and leaving the other four (at the corners) narrow.

But remember, no banana peels.









Book/Magazine Case

STORE BOOKS, DISPLAY MAGAZINES, RETAIN BACK ISSUES

I'm a magazine nut. I freely admit it. So when I decided to build a new book case I wanted to have a way to display the current issues and store back issues.

Well, the bookcase/magazine rack shown above is what I came up with. As you can see the magazines have their own display board which lifts up and slides back to reveal storage shelves. And then to solve the tumbling-book problem, I drilled a series of holes in the two book shelves and fitted moveable book supports into the holes.

CUTTING THE WOOD

The case shown here is made of ¾" birch veneer plywood. However, if hardwood plywood is difficult for you to obtain, you can certainly use Fir (A-B Grade, Interior). The Cutting Diagram shows two 4' x 4' sheets just because this size is easier to handle than a 4' x 8' sheet. You'll also need a 4' x 4' sheet of ⅛" or ¼" plywood for the back (not shown in the Cutting Diagram).

The best procedure to follow in cutting the wood is to cut the top, bottom, and sides (A and B) to the lengths and widths shown in the Materials List. You can cut the shelves to approximate length now, but they should be cut to fit after the surround is glued together.

I didn't want any end grain showing on the completed project. That meant mitering the ends of the four surround pieces. And since a mitered joint is not very strong, the use of a spline was also required. (The spline also helps keep the joint together during gluing.)

After mitering the ends of the four surround pieces (A and B), keep the arbor set at 45° and insert an ¼" dado blade to cut the groove for the spline. Move the rip fence close to the blade so the groove is cut no more than ¼" from the *inside* corner. Each groove should be just a hair more than ¾" deep — enough to accept a ¾" -wide spline.

THE SHELVES AND DISPLAY BOARD

The spacing for the two book-shelf dadoes is shown in Fig. 1. I cut these two dadoes on the *Woodsmith* router table (shown in Issue No. 5). The router table was also very handy for cutting the stopped dado for the magazine shelf (D) and the ¾" dado tht accepts the pin on the magazine

display board (Fig. 2).

When the dadoes are complete, you can go ahead and assemble the surround (I used *Elmer's* Carpenter's Glue).

While the surround is drying, cut the shelves (C and D) to fit between the sides. Then drill a series of ¾" holes for the book supports, as shown in Fig. 3. To do this I drilled two holes, 6" apart, in the bottom of one of the book supports (G). Then by inserting dowel centers in these holes I used it as a jig to mark the other book supports and the holes in the shelves.

The magazine display board (E) is cut to fit — trimming it about ¼" shorter than the inside dimension of the surround. Drill a ⅜" hole in both ends of the display board, centered and ⅝" down from the top. Then glue two pieces of ½" birch (H and I) to the bottom of the display board (Fig. 2).

EXPERIMENTS IN FINISHING

I tried several new approaches to finishing this project. First, I used an iron-on plywood edging tape (the brand was *Shurwood* Plywood Edging) to cover all exposed edges. It was easy, fast and yielded good results.

For staining I tried one of the new gelled wood stains (the one I used is called *Wood Kote*, Danish Walnut). It was very nice to work with, and though it takes slightly longer to apply than a penetrating oil stain, the results are very similar.

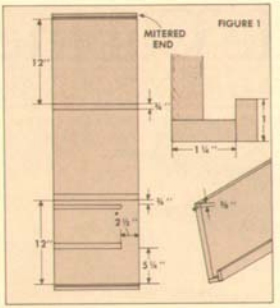
Since I was experimenting anyway I decided to try a new water-based varnish, *Deft Wood Armor*. This also produced good results, but there were a few problems. It has a tendency to show brush marks. And according to the label, you should sand with fine sandpaper between coats. The problem was that the sandpaper clogged almost immediately. So I switched over to steel wool. Also, it tends to raise the grain.

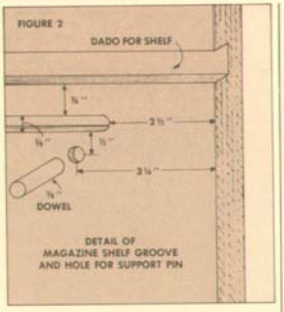
Finally, I used some brass campaign hardware just to give it a little class. The hardware shown here was obtained locally, but it is also available through *The Woodworkers' Store* (catalogue $1), 21801 Industrial Blvd., Rogers, MN 55374.

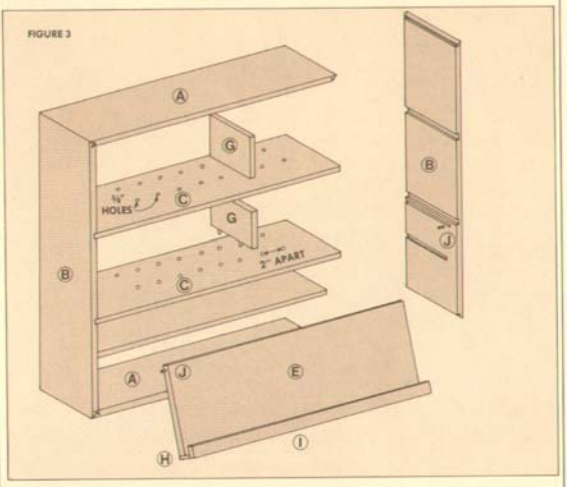
MATERIALS LIST

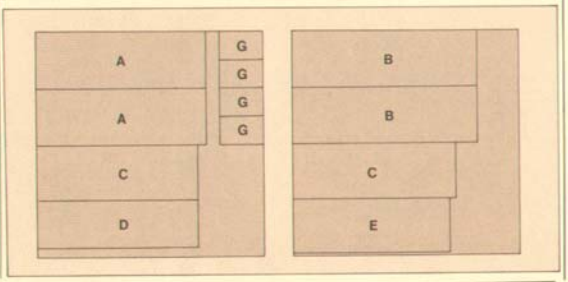
A	Top & Bottom	¾ x 12 - 36
B	Sides	¾ x 12 - 39
C	Book Shelves	¾ x 11⅞ - 35*
D	Magazine Shelf	¾ x 9½ - 35*
E	Magazine Display	¾ x 11¼ - 34⅛*
F	Back	⅛ x 35 - 38*
G	Dividers	¾ x 12 - 9
H	Magazine Support	½ x 1¼ - 34⅛
I	Magazine Hold	½ x 1 - 34⅛
J	⅜" Dowels	

* Cut to fit.



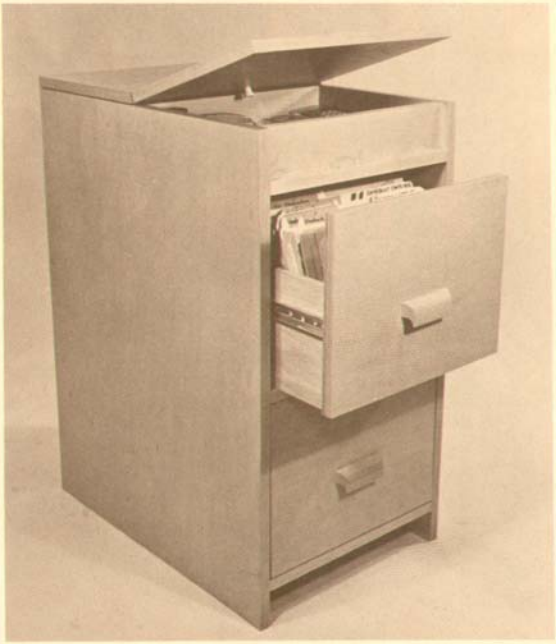






File Cabinet

ORGANIZE BILLS AND RECORDS PLUS STORAGE ON TOP



Most file cabinets have one major drawback: there's no place to store things like a checkbook, calculator, stapler, paperclips, etc. I thought it would be nice to keep those things close to all the papers, bills, and documents. So when I built the file cabinet shown here, I included two storage compartments and a lid on top.

CUTTING THE WOOD

The Cutting Diagram for this project worked out fairly well, with very little waste. As shown, you'll need a half-sheet of ¾" plywood. (I used maple veneer plywood, but A-B Interior Fir can be substituted.)

Start by cutting the sides of the cabinet to the dimensions shown in the Materials List. Instead of using plain dadoes to attach the rails, I decided to use half-dovetail grooves. The extra mechanical strength of this joint, it seemed to me, would make the file cabinet strong enough to withstand an anger-venting slam or two during income tax time.

I cut these grooves on the *Woodsmith* router table (shown in Issue No. 5). Spacing for the grooves is shown in Fig. 1. For each groove I first used a ¾" straight bit to clear out most of the wood. Then I switched to a ½" dovetail bit, using it to cut only one side of the groove. This groove serves two purposes: it holds the rails firmly in place, and provides a groove for the dust panels. (Since drawer slides are used, "kickers" aren't needed.)

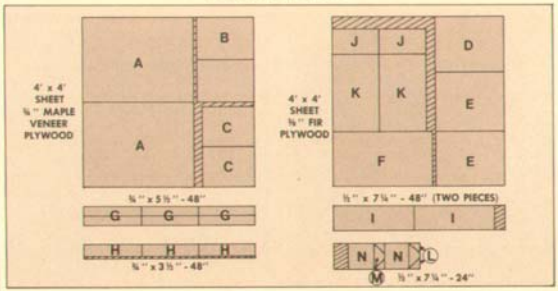
After the half-dovetail grooves were cut, I started in on the rails. The six rails were cut to length. Then I found a piece of scrap the same thickness as these rails and used it as a try-piece to adjust the size of the half-dovetail at the end of the rail so it fits snugly into the grooves.

The half-dovetail was also cut in the rails on the *Woodsmith* router table. (Hold the rail vertically against the fence with one hand and push it through the dovetail bit with a piece of scrap.) Also cut rabbets on the inside edge of the rails to accept the dust panels.

Finally, cut the stopped grooves on the top of the sides for the compartment dividers (again on the router table). Rabbet the ends of the dividers and you're ready to assemble the cabinet.

Glue the front rails into the grooves, then slide the plywood dust boards in from the back and glue in the back rails. Before the glue sets, check to make sure the cabinet is square.

CUTTING DIAGRAM



THE DRAWERS

Once the cabinet is glued and clamped together, measure the openings and cut the drawer fronts ¼" smaller (thus allowing a 1/16" gap all around). The stopped half-dovetail grooves can then be cut in the back side of the drawer front, Fig. 2.

The position of these grooves is critical. Since the drawers are mounted with drawer slides, the space between the drawer side and the cabinet side must be exactly ½". (Most side-mounted drawer slides require this ½" spacing, but check the instructions on the particular brand you use to be sure.)

If you have allowed exactly 1/16" on each side for the gap, then the groove will be 7/16" from the side of the drawer front.

As shown in the view of the bottom edge of the drawer front, Fig. 2, both of these grooves are half-dovetails. As with the grooves in the cabinet sides, first cut a ¼" groove with a straight bit. There is a slight problem here though.

When cutting the groove on the left side, you're okay; but on the right side you would have to enter at the "stopped" end in order to have the proper feed direction. Since this is impossible, you have to feed the drawer groove on the "back side" of the bit. This will create a slight tug at the workpiece, pulling it into the bit. It's not bad, just as long as you're aware of what's happening.

The drawer sides (I) are dovetailed at the front end and dadoed at the back end for the drawer back (J). Also cut a ¼" groove, ½" up from the bottom edge, for the drawer bottom (K). (Note: I used ½" Poplar for the drawer sides, though it's listed as ½" plywood. Either is okay.)

Before assembling the drawer, there's one last step. That is to drill a series of ¼" holes along the center line of the drawer bottom (K). These holes are for the file index shown in the detail in Fig. 2. (To make the file index, cut the two triangular supports (L) at a 45° angle, then cut off the base and the upright.)

To get the proper spacing for the holes in the drawer bottom, drill one ¾" hole about 1" from the back end of the drawer bottom. Then drill two ¼" holes in the index base (M) 2" apart and use it as a jig. Insert a dowel center in the front hole of the base (M) and push a short length of dowel through the back hole and into the hole in the drawer bottom. A slight tap will then mark the position of the second hole in the drawer bottom. Drill it, and continue the same procedure for the next hole.

THE CABINET'S LID

While shopping for the hinges, I wound up in the wrong aisle of the hardware store and stumbled across some wrap-around hinges used for hanging interior shutters. These are ideal for attaching the back half of the lid to the cabinet. And they come packaged with some loose-pin hinges which are used to join the front and back halves of the lid. There is even a small knob that can be used to lift the lid (as shown in the photo).

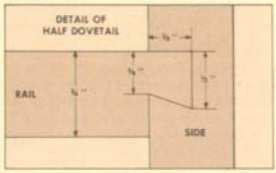
The final step was to apply plywood edging to all exposed plywood ends. I used an iron-on edging called *Edgemate* that worked very well.

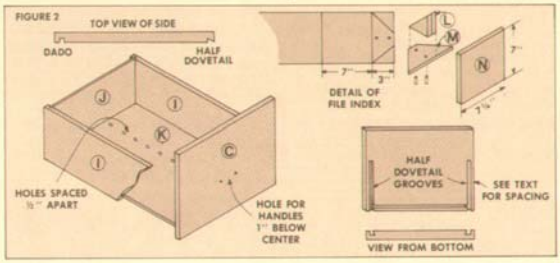
To finish the cabinet, I tried a new product, *Deft Wood Armor*, a water-based acrylic finish. The label on the can said that it's non-yellowing, so I wanted to try it without stain just to see. It produced a clear, non-yellow finish similar in appearance to white shellac. (I like it.)

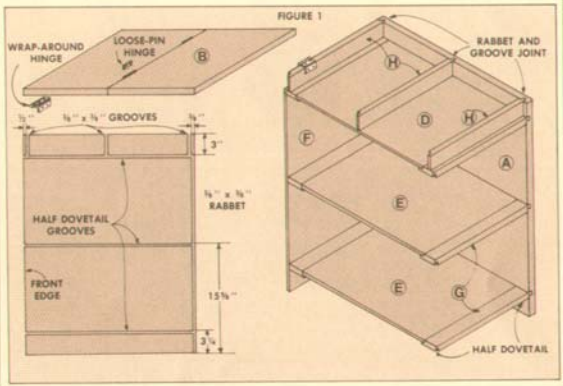
The final step is to mount the drawer slides and start stuffing the drawers with all sorts of papers, bills and documents. Then sit back, admire the cabinet, and wonder where all that stuff came from.

MATERIALS LIST

A	Side	2	¾ x 23¾ - 31
B	Lid	2	¾ x 16⅛ - 23¾
C	Drawer Front	2	¾ x 11½ - 14¾
D	Top Dust Panel	1	⅜ x 15⅝ - 19½
E	Dust Panels	2	⅜ x 15⅝ - 19⅛
F	Back	1	⅜ x 15⅝ - 27⅝
G	Rail	6	¾ x 2⅝ - 15⅝
H	Comp. Divider	3	¾ x 3 - 15⅝
I	Drawer Side	4	⅜ x 7¼ - 22⅝
J	Drawer Back	2	⅜ x 6⅝ - 13⅛
K	Drawer Bottom	2	⅜ x 13⅛ - 22⅛
L	Index Support	4	½ x 3 - 3
M	Index Base	2	½ x 7¼ - 3
N	Index Front	2	½ x 7¼ - 7







Router Table Techniques

USE YOUR ROUTER TABLE TO ITS FULLEST ADVANTAGE

In *Woodsmith* No. 5 we ran an article about converting your router to a shaper by mounting it on a table. I thought I'd update that article and show some of the operations that can be performed.

There are two things to keep in mind when using the router table. First, be very careful: the bit is exposed and dangerous. Second, when using the fence, it's not like a table saw. A bird's eye view of a table saw's blade and fence would look like two parallel lines.

However, looking down on the router table you would see a circle (the spinning bit) and a straight line (the fence). In this case even when the fence is at what looks like an angle, as in Fig. 1, the bit will still cut in a straight line parallel to the fence.

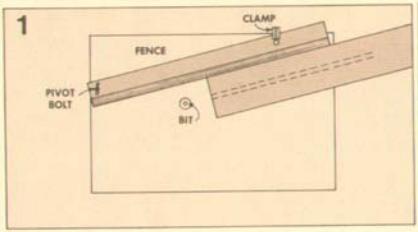
The fence can be positioned over, or close to, the bit. In this case use the hold-down bolt at one end and a clamp at the other end. This set-up is useful for edge work, such as routing a rabbet. When cutting grooves less than 3" from the bit, the fence can be pivoted on the bolt and clamped along the back of the table (Fig. 1).

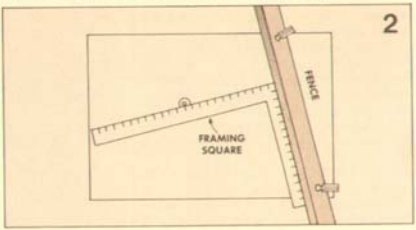
Always measure the distance from the fence to the bit with a framing square (Fig. 2). It doesn't matter if the fence is slightly askew as shown.

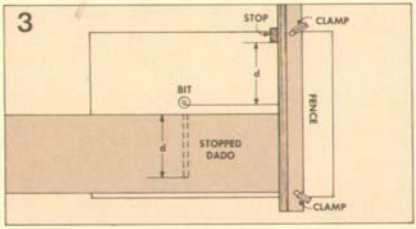
Since the bit is really a circle, you don't have to think of a "front" or "back" to the table. This is demonstrated in Figs. 3 and 4. The board can be worked from the "front" or "back" and the fence can be on the "right" or "left". These two drawings show how to cut stopped dadoes.

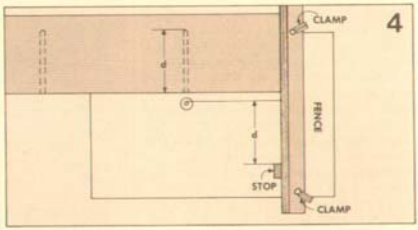
When using a bit with a pilot, add a triangular support to the table (Fig. 5) to steady the workpiece as you ease it into the bit. (Cut the support from a piece of 1 x 8 scrap and screw it to the table top.)

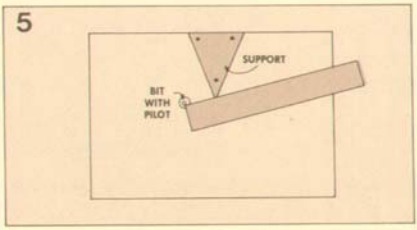
Figure 6 shows how the fence can be used with two stops to cut a blind dado in a board. Mark the position of both "sides" of the bit, and also mark where you want the dado to start and stop.

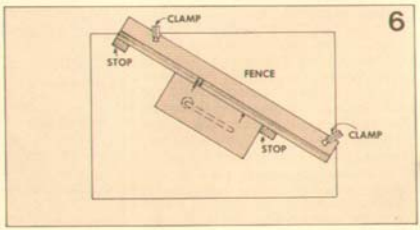












Miter And Spline Joinery

HOW TO CUT AND CLAMP A MITER AND SPLINE JOINT

There are three types of miter joints: a frame miter, cross miter, and rip miter. A frame miter is cut across the width of a board at an angle. (We'll save the discussion of this type for another time.)

Both of the other two miters are actually bevel cuts made at the end of a board (cross miter) or along the edge (rip miter). A rip miter can also be a "waterfall", but again, that's for another time.

THE SPLINE

Since no mechanical strength is offered by a miter joint and, in the case of the cross miter, the boards are joined end grain to end grain, a miter joint is one of the weakest joints in woodworking.

The addition of a spline helps considerably. The spline adds mechanical strength to the joint, provides greater gluing surface, and keeps the work from slipping during assembly.

In general splines are as wide as the stock is thick. So, if you're using ¾" stock, the spline would be ¾" wide. The best material for splines is ¼" birch plywood, though ¼" hardboard can be substituted. The groove for the spline should be cut a hair deeper than the spline's width, i.e. each groove would be a hair over ¾" deep for a ¾"-wide spline. And, the grooves should be cut as close to the inside corner as possible. (usually ¼" from the corner in ¾" stock).

CUTTING THE MITER AND GROOVE

Now that we've got all of the terminology out of the way, we can get down to the fun part. There's nothing too difficult about cutting a miter joint. However, it's usually best to cut the workpiece to approximate length (for a cross miter) or width (rip miter) so there's a minimum of fall-off on the "under side" of the blade.

How you cut the groove for the spline depends on the angle of the miter cut. The easiest is the 45° miter. Since the blade is set at 45° for cutting the miter, it's simply a matter of changing to a dado blade and adjusting the fence (for a rip miter, Fig. 1) or using the miter gauge (for a cross miter, not shown).

When the miter is less than 45° the workpiece must be held vertically against the fence (Fig. 2) with the aid of a finger clamp. (Place a piece of scrap under the clamp to raise it to the flat, not mitered, part of the board.)

If you want to conceal the spline at one or both ends of the groove, use the set-up shown in Fig. 3. Clamp an auxiliary fence along the table and adjust the regular fence so the mitered edge or end rests flat on the table as the workpiece slides along the top edge of the fence. The blade is set straight up for all angles.

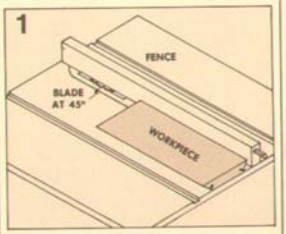
Note: This is a tricky cut. The edge of the workpiece can slip under the fence, which makes it both difficult and dangerous to lift out. Always make a couple of dry runs (with the blade cranked all the way down) to see what problems might crop up.

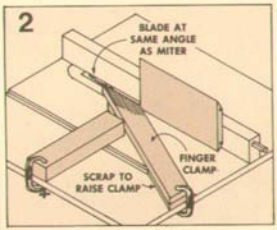
CLAMPING AND GLUING

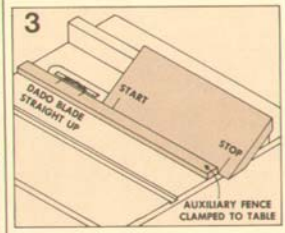
To clamp mitered pieces that form a complete perimeter use band clamps with spacing blocks at each corner (Fig. 4). Bar clamps can also be used (with 45° miters) by clamping the joint in both directions.

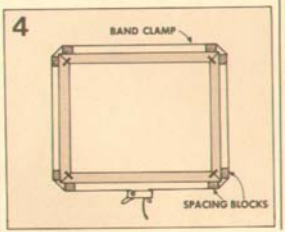
A special clamping block can be made by cutting a notch in a piece of scrap at the same angle as the miter (Fig. 5). Cut the block from stock at least 1" thick and as wide as the boards you're clamping. It's especially made for use with plywood, but can be used on solid wood.

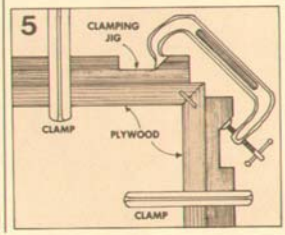
For solid stock (not plywood) with 45° miters, use glue blocks (Fig. 6). Just glue the glue blocks at the corners and clamp the joint together. When dry, a sharp whack will knock off the block. Then sand off any remaining glue.

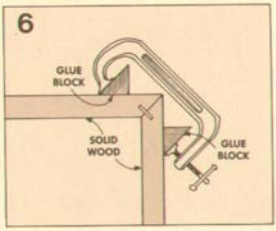












Book Rack

STOP THE TUMBLING-BOOK SYNDROME

Has this every happened to you? You go to the bookcase to get out a book. The second you pull the book out, all of the others start tumbling every which way, knocking over the book-end and causing a mild panic. It's called the tumbling-book syndrome, and it's common to most bookcases and racks.

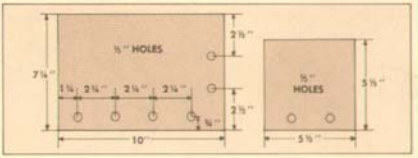
But the book rack shown here is immune. As you can see it's very simple to build. And it does work. The book support simply slides on the center two dowels on the bottom. If a book is removed and the others start tumbling over, they hit the top edge of the book support and cause it to bind on the dowels.

I used some scrap birch plywood for the ends of the rack. But a piece of 1 x 8 scrap wood of any kind could also be used. The book support is a piece of 1 x 6 scrap. And all the dowels are 18" long (half of a common 36" length of dowel).

Mark the position of the dowel holes (these can be adjusted to suit your needs) and clamp both sides together. Then drill both pieces at once. Insert dowel centers in the center two holes along the bottom, and use this as a jig to mark the holes in the book support. (These holes should be ½" *lower* than on the ends, so the book support will be raised up ½".)

File out these holes so the book support slides *easily* on the dowels. Try it a few times. It will probably feel much too loose, but that's the way it should be. As you're filing out the holes, make sure you don't round over the edges. This is where the book support will bind on the dowels, which is what you want it to do. (If you make this book rack during the winter, file a little extra, because the dowels will swell come summer.)

Sand all pieces before gluing the dowels into the holes. I finished this book rack with *Wood-Kote* Danish Walnut (a gelled wood stain) and gave it two coats of *Watco* Danish Oil.



BACK ISSUES

Following is a list of the contents of back issues of *Woodsmith*. Back issues are available for $2 each plus 25¢ postage.

Number One: Trestle Table, Contemporary Double-Duty Tables, Tie Rack, Cookie Cooling Rack, Cutting Board, Finger Clamps, Drill Press Guides, Taper Jig, Carpenter's Triangle.

Number Two: Contemporary Chairs, Table Saw Techniques: Box Joint and Stopped Dado, Hanging Lamp, Raised-Panel Door, Technique: Mitered Half-Lap, Shaker Peg Rack.

Number Three: Canvas and Redwood Deck Chair, Redwood Garden Bench, Deck Squares, Redwood Plant Tub, Cedar Plant Pillars, Hanging Planter, Tips For Outdoor Furniture, Nine Variations On Planter Boxes

Number Four: Roll-Top Bread Box, Angle Drilling Jigs (Three), Shop Stool, Lazy Sam Tool Storage, Box Of Drawers, Box Building Basics, Router Case.

Number Five: Router Table, Make Your Own Tools: Wedge Clamps, Taper Jig, Bow Saw, Drawing An Ellipse, Oval Frame, Toy Train and Race Car.

Number Six: Music Box, Cookbook/Recipe Shelf, Candle Sconce, Spice Box, Joinery Techniques: Rabbet and Groove Joint, Three Resawing Jigs, Wooden Christmas Ornaments, Christmas Display Tree.

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